
Bioelectricity and epimorphic regeneration.

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Public Summary:

All cells have electric potentials across their membranes, but is there really compelling evidence to think that such potentials are used as instructional cues in developmental biology? Numerous reports indicate that, in fact, steady, weak bioelectric fields are observed throughout biology and function during diverse biological processes, including development. Bioelectric fields, generated upon amputation, are also likely to play a key role during vertebrate regeneration by providing the instructive cues needed to direct migrating cells to form a wound epithelium, a structure unique to regenerating animals. However, mechanistic insight is still sorely lacking in the field. What are the genes required for bioelectric-dependent cell migration during regeneration? The power of genetics combined with the use of zebrafish offers the best opportunity for unbiased identification of the molecular players in bioelectricity.

Scientific Abstract:

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